Fig. 1

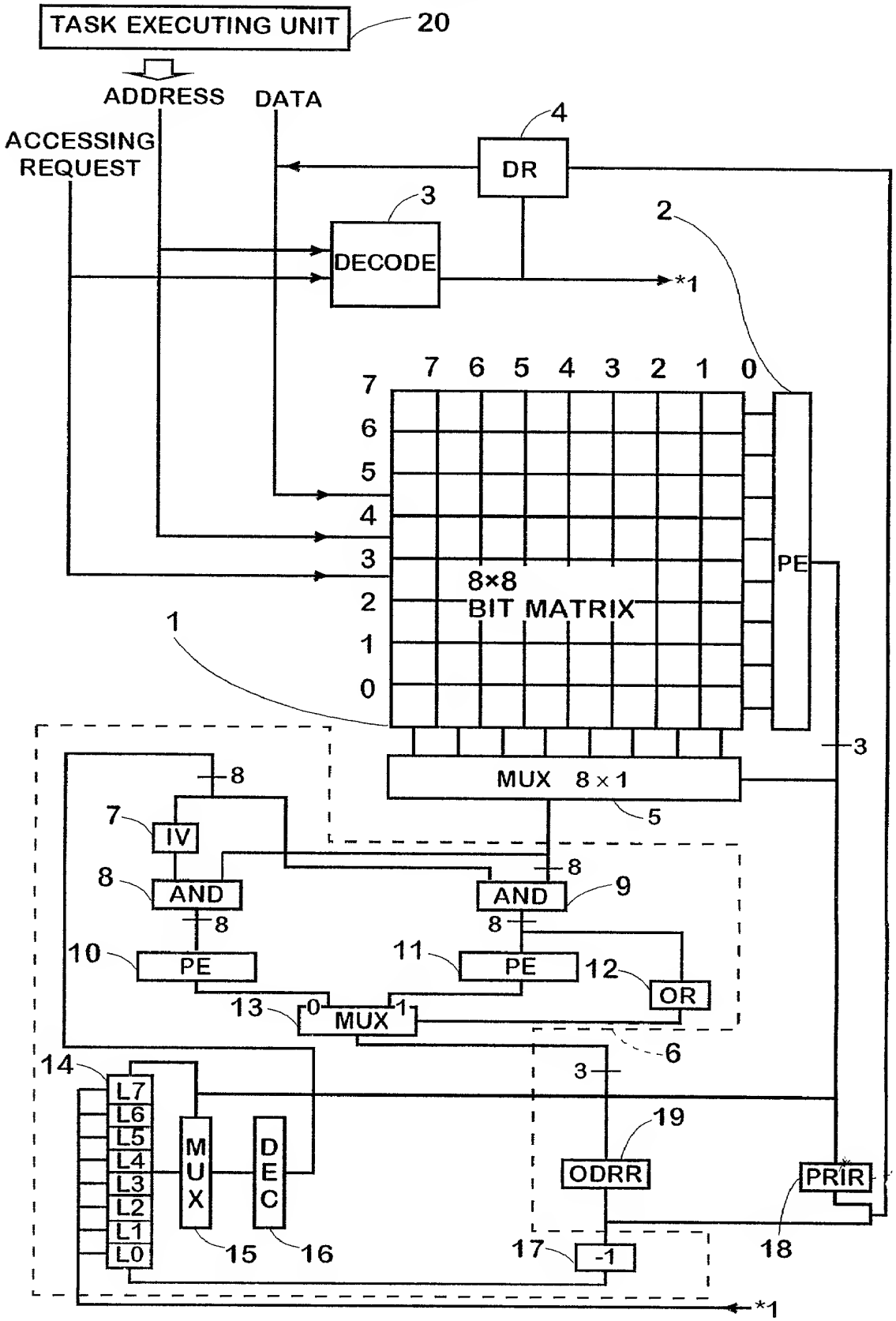

TASK EXECUTING UNIT
20
ADDRESS
DATA
ACCESSING REQUEST
4
DR
3
DECODE
2
*1
7 6 5 4 3 2 1 0
7
6
5
4
3
2
1
0
8×8 BIT MATRIX
PE
1
3
MUX 8×1
5
8
7
IV
8
AND
8
AND
9
8
8
10
PE
11
PE
12
OR
13
0
MUX
1
6
3
14
L7
L6
L5
L4
L3
L2
L1
L0
MUX
DEC
15
16
19
ODRR
PRIR
17
-1
18
*1

Fig.2

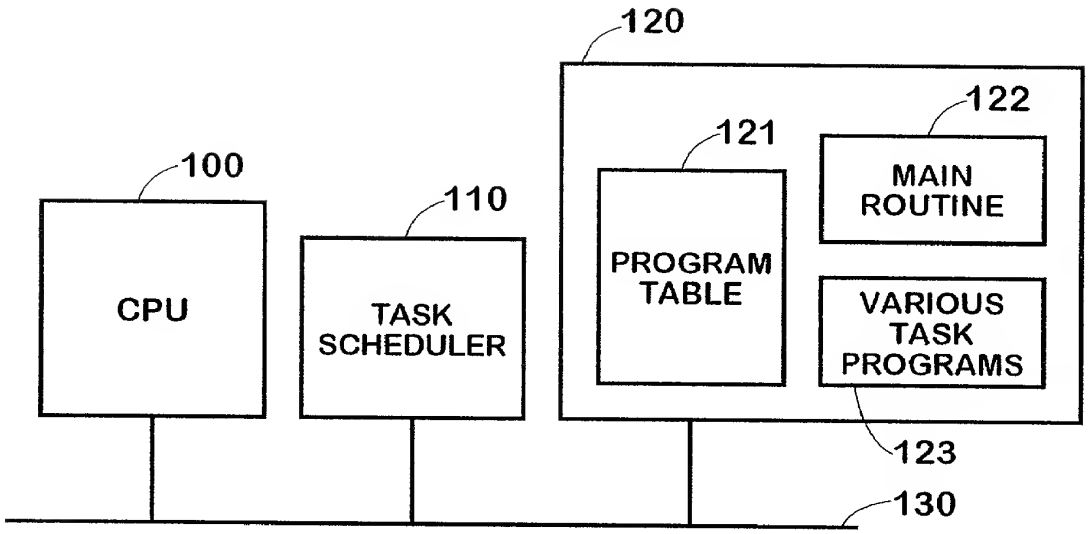

120
122
121
100
110
MAIN ROUTINE
PROGRAM TABLE
CPU
TASK SCHEDULER
VARIOUS TASK PROGRAMS
123
130

Fig.3

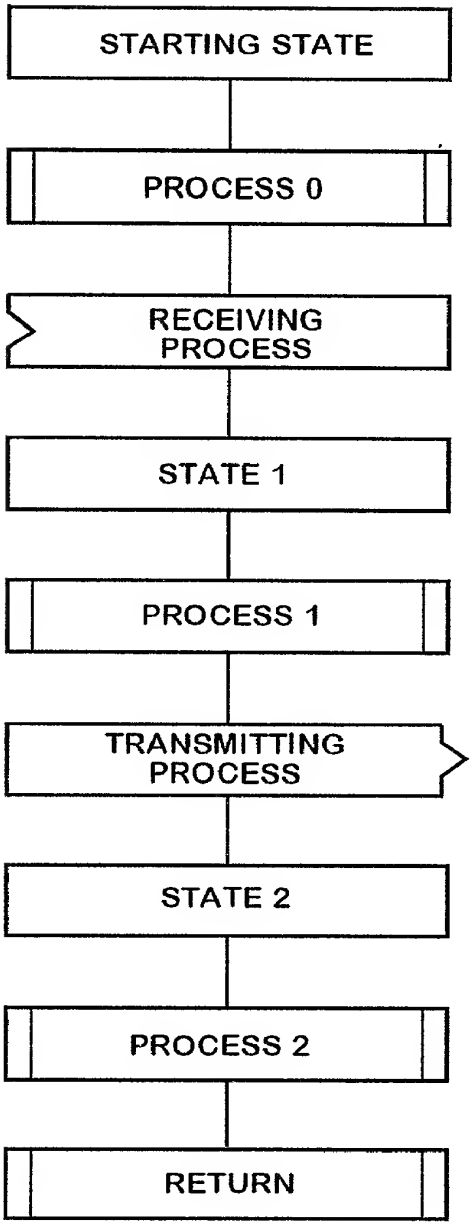

STARTING STATE
PROCESS 0
RECEIVING PROCESS
STATE 1
PROCESS 1
TRANSMITTING PROCESS
STATE 2
PROCESS 2
RETURN

Fig.4

```
func()
{
    proc0:
        Process Contents 0;
    recieve(chanel0, data);
    proc1:
        Process Contents 1;
    send(chanel0, data);
    proc2:
        Process Contents 2;
    return;
}
```

Fig.5A

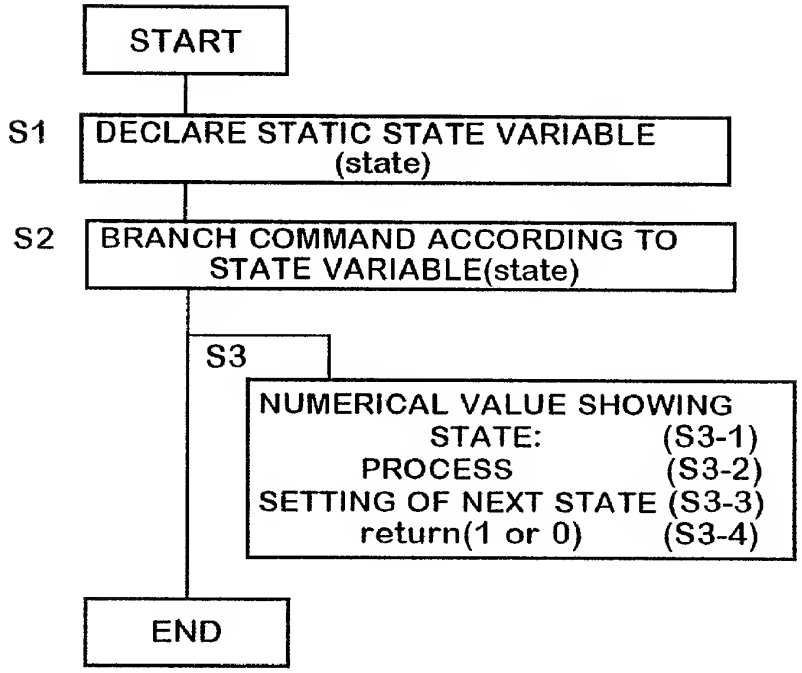

START
S1
DECLARE STATIC STATE VARIABLE (state)
S2
BRANCH COMMAND ACCORDING TO STATE VARIABLE(state)
S3
NUMERICAL VALUE SHOWING STATE: (S3-1)
PROCESS (S3-2)
SETTING OF NEXT STATE (S3-3)
return(1 or 0) (S3-4)
END

Fig.5B

```
static int state;  // S1
func()
{
    switch(state&0x3) { // S2
    //S3
    case0:   //S3-1
            Process Contents 0;  //  S3-2
            state=1;     //  S3-3
            return(0);  //   S3-4
    case1:
            get(chanel0,data);
            Process Contents 1;
            send(chanel0, data);
            state=2;
            return(0);
    case2:
            Process Contents 2;
            state=0;
            return(0);
    defaults:
            state=0;
            return(0);
   }
}
```

Fig.5B-1

Fig.6A

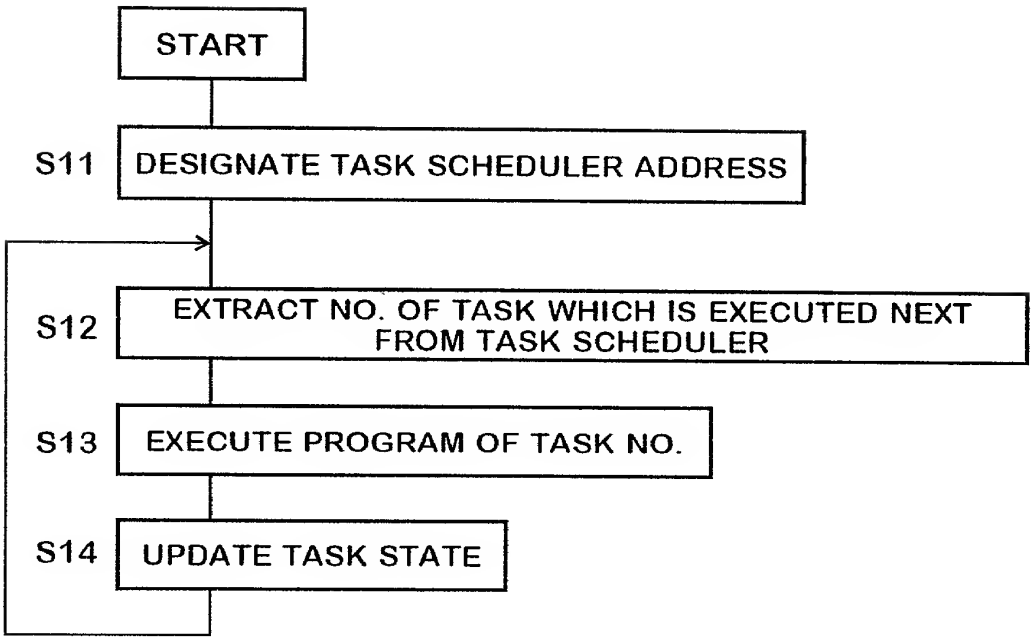


Fig.6B

```
int. *sp;
sp= TASK_SCHEDULER_ADR;   // S11

while(1) {
     NUM= *sp;                        // S12
     state[NUM]=func[NUM]();    // S13&S14
     }
```

US 6,658,564 B1

Fig.7A

task0 b110_101
task1 b011_110
task2 b011_011

ADDRESS OF EACH TASK

Fig.7B

	7	6	5	4	3	2	1	0
7	0	0	0	0	0	0	0	0
6	0	0	1	0	0	0	0	0
5	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
3	0	1	0	0	1	0	0	0
2	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

SITUATION OF 8 × 8 BIT MATRIX

Fig.8A

```
static int sta0;

int task0()
{
      switch(sta0&0x1) {
      case0:                  //13_S
            sta0=1;
            return(0);
      case1:                  //30_S
            sta0=0;
            return(0);
    }
}
```

CONTENS OF TASK 0

Fig.8B

```
static int sta1;

int task1()
{
      switch(sta1&0x1) {
      case0:                  //19_S
            sta1=1;
            return(1);
      case1:
            sta1=0;
            return(0);
    }
}
```

CONTENS OF TASK 1

Fig.8C

```
static int sta2;

int task2()
{
      switch(sta2&0x1) {
      case0:                  //26_S
            state(task0_id)=1;
            sta2=1;
            return(1);
      case1:
            sta2=0;
            return(0);
    }
}
```

CONTENS OF TASK 2

Fig.9

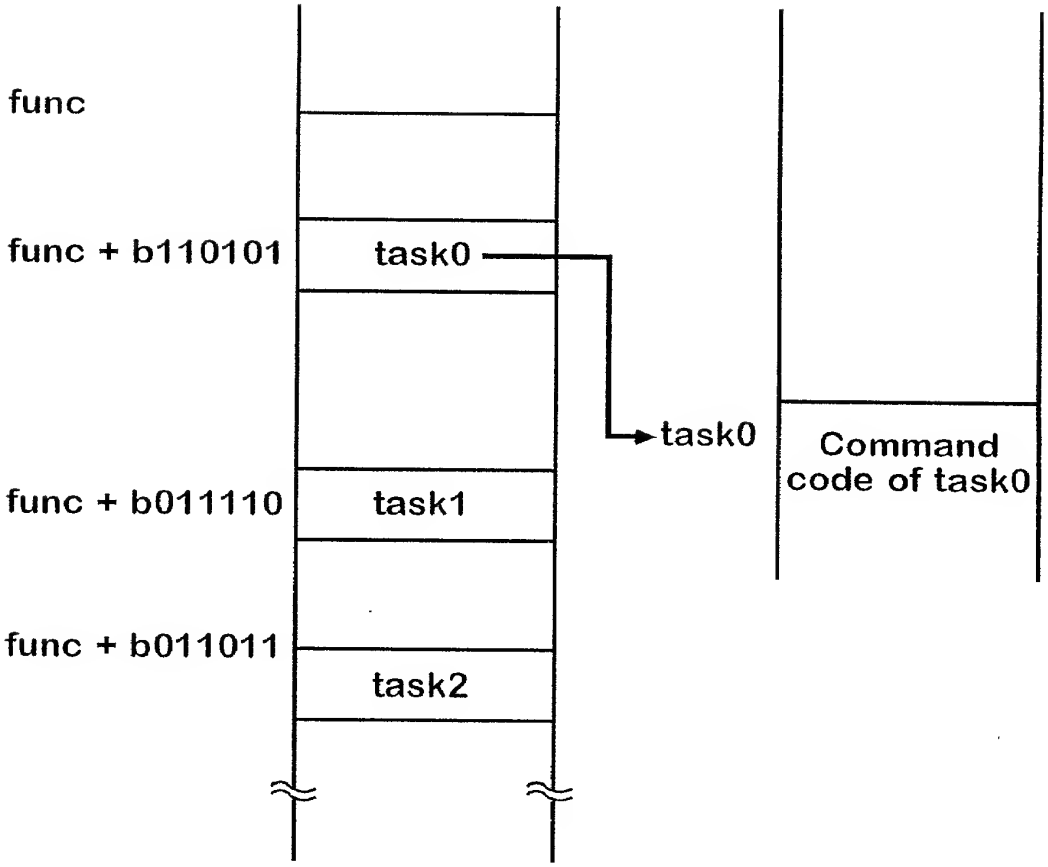

func
func + b110101
task0
task0
Command code of task0
func + b011110
task1
func + b011011
task2

Fig.10

task0
task1
task2
task0
task1
task2

Fig.11

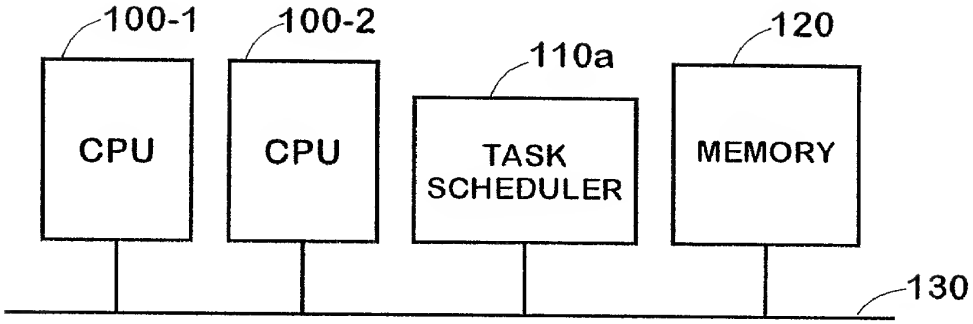

100-1
100-2
110a
120
CPU
CPU
TASK SCHEDULER
MEMORY
130

Fig.12

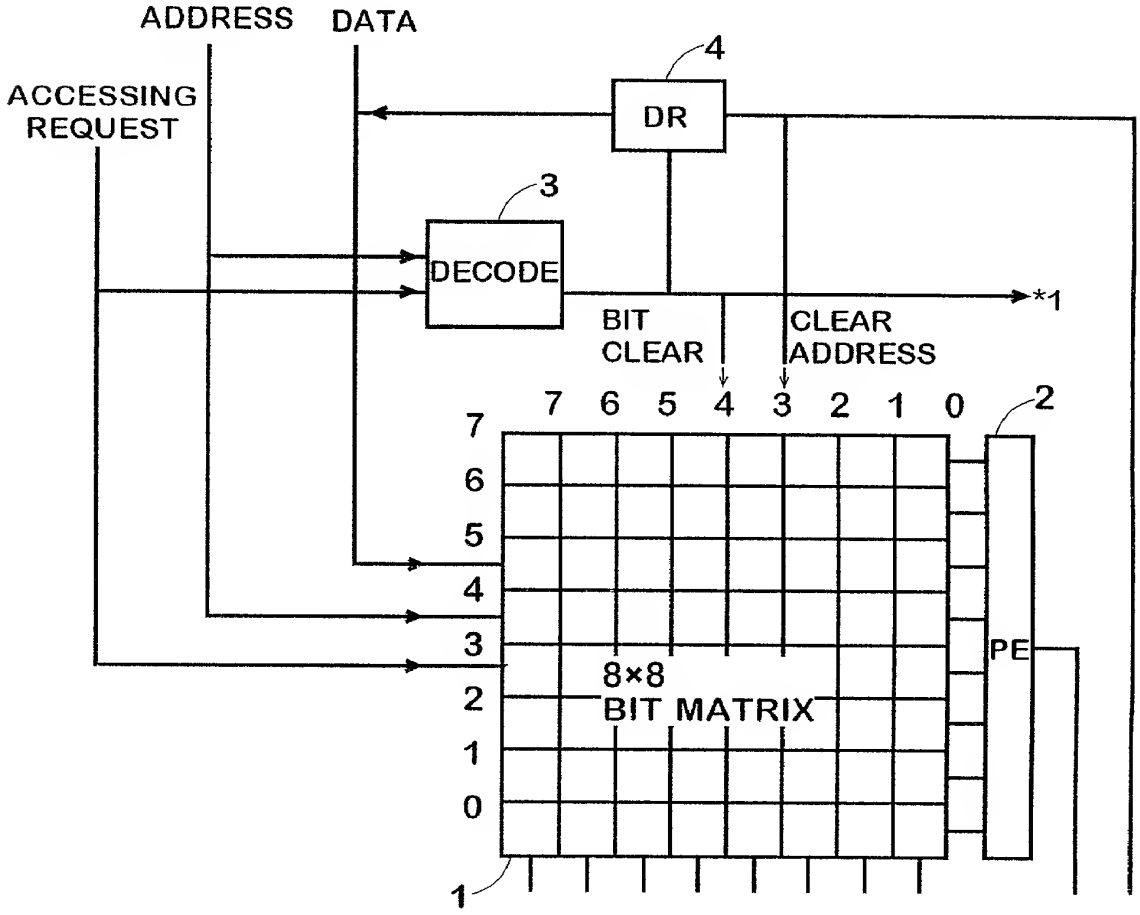

ADDRESS
DATA
ACCESSING REQUEST
4
DR
3
DECODE
*1
BIT CLEAR
CLEAR ADDRESS
7 6 5 4 3 2 1 0
2
7
6
5
4
3
2
1
0
1
8×8 BIT MATRIX
PE

Fig.13

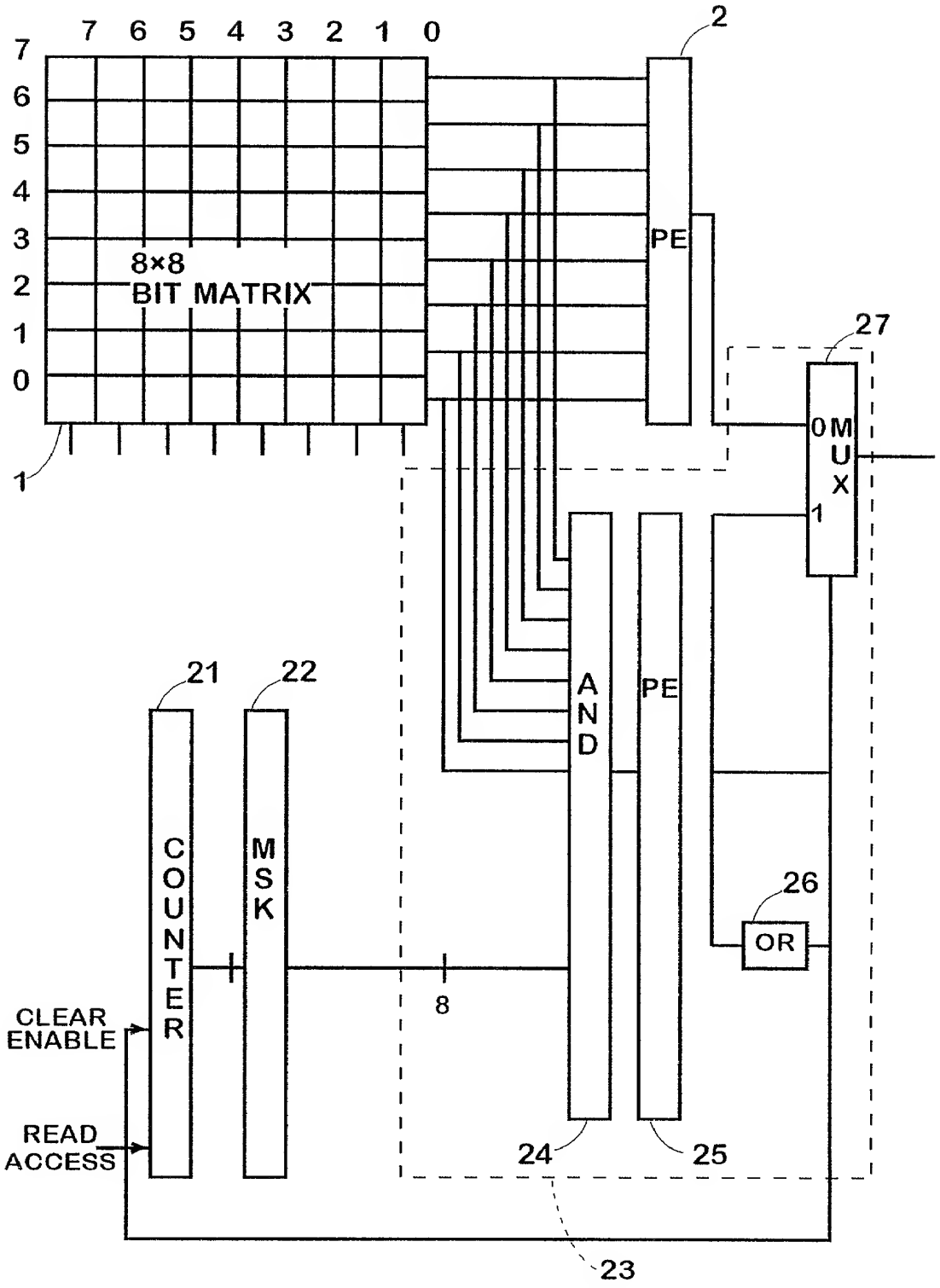

7 6 5 4 3 2 1 0
7
6
5
4
3
2
1
0
8×8
BIT MATRIX
1
2
PE
27
0
M
U
X
1
AND
PE
21
22
COUNTER
MSK
8
26
OR
CLEAR
ENABLE
READ
ACCESS
24
25
23

Fig.14

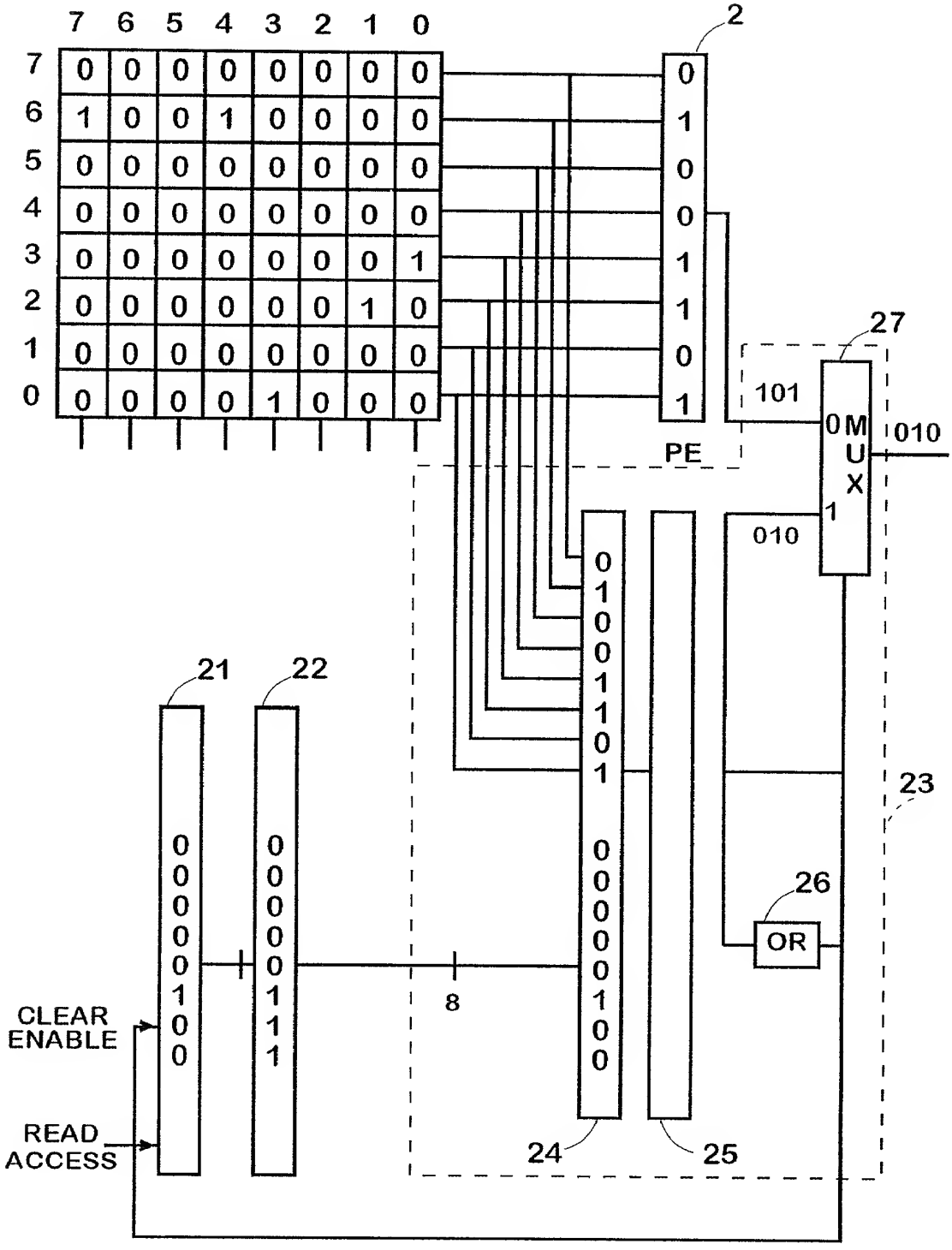

7 6 5 4 3 2 1 0
7 0 0 0 0 0 0 0 0
6 1 0 0 1 0 0 0 0
5 0 0 0 0 0 0 0 0
4 0 0 0 0 0 0 0 0
3 0 0 0 0 0 0 0 1
2 0 0 0 0 0 0 1 0
1 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 0
2
0 1 0 0 1 1 0 1
PE
27
101
0 MUX 1
010
010
0 1 0 0 1 1 0 1 0 0 0 0 0 1 0 0
21
22
0 0 0 0 0 0 1 0 0
0 0 0 0 0 1 1 1 1
8
23
26
OR
CLEAR ENABLE
READ ACCESS
24
25

Fig.15

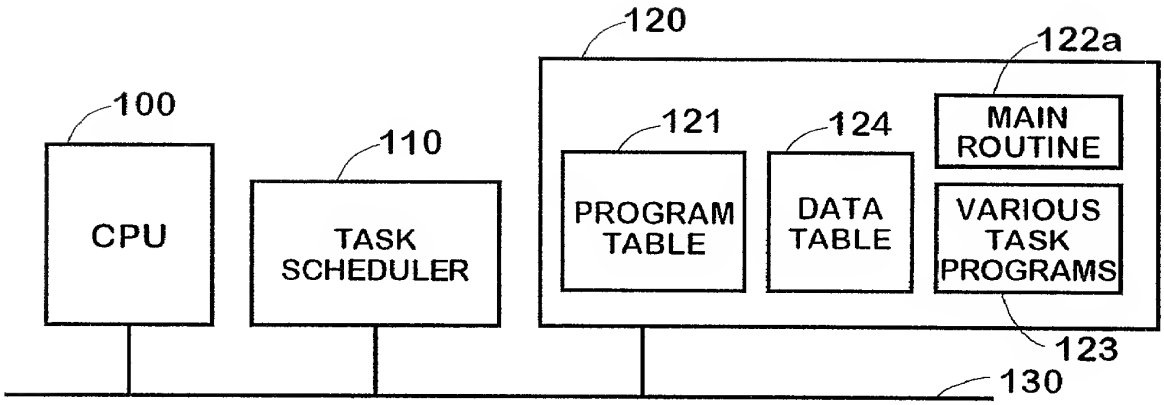

120
122a
100
110
121
124
MAIN ROUTINE
CPU
TASK SCHEDULER
PROGRAM TABLE
DATA TABLE
VARIOUS TASK PROGRAMS
123
130

Fig.16

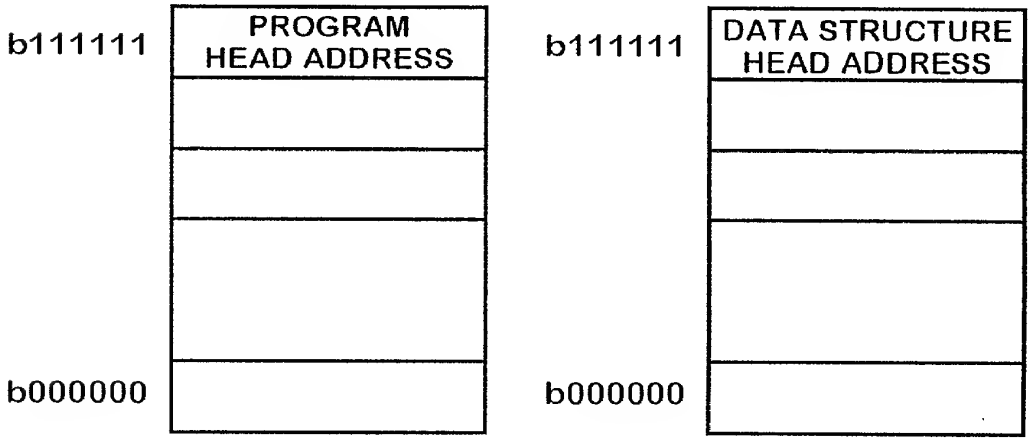

b111111
PROGRAM HEAD ADDRESS
b000000
PROGRAM TABLE
b111111
DATA STRUCTURE HEAD ADDRESS
b000000
DATA TABLE

Fig.17A

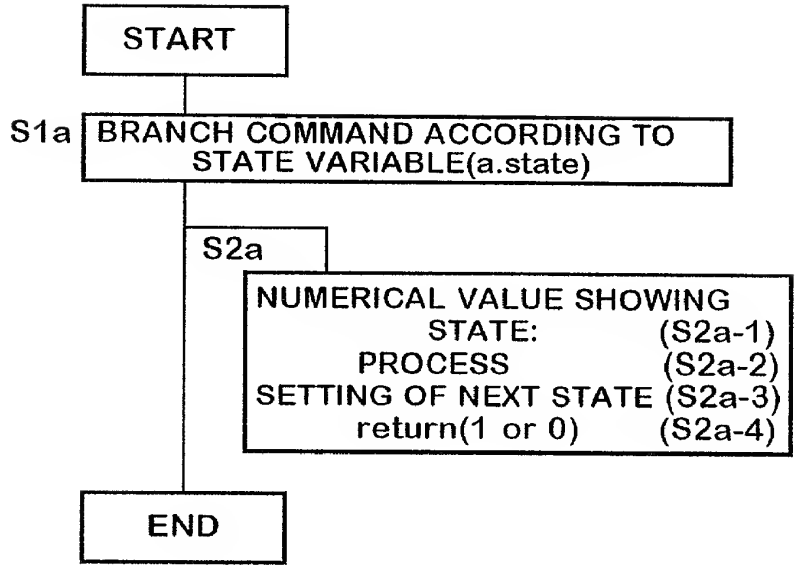


Fig.17B

```
int.  func(struct xxx*a)
{
     switch(a.state&0x3) { // S1a
     //S2a
     case0:    //S2a-1
               Process contents 0;   //   S2a-2
               state=1;      //   S2a-3
               return(0);   //    S2a-4
     case1:
               get(chanel0,data);
               Process contents 1;
               send(chanel0, data);
               a.state=2;
               return(0);
     case2:
              Process contents 2;
              a.state=0;
               return(0);
     defaults:
               a.state=0;
               return(0);
   }
}
```

Fig.18A

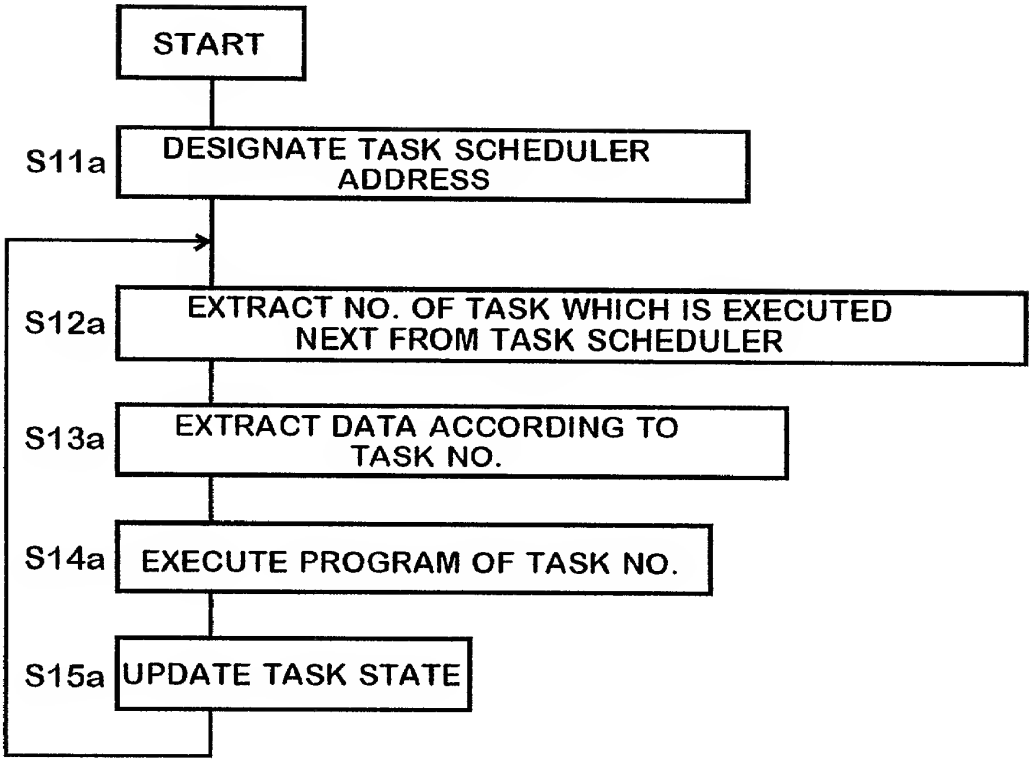
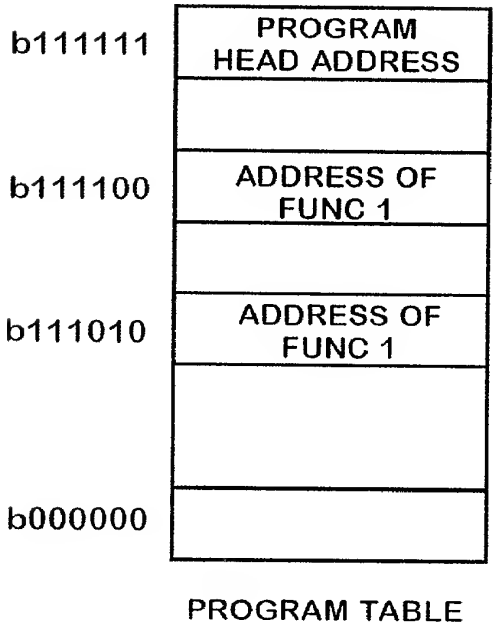


Fig.18B

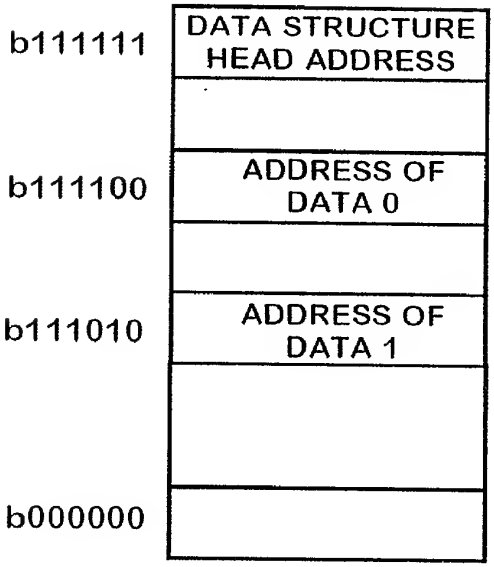
```
int. *sp;
int. *data[];
sp= TASK_SCHEDULER_ADR;  // S11a

while(1) {
    NUM= *sp;                          // S12a
    state[NUM]=func[NUM](data[NUM]);  // S14a&15a&S13a
    }
```

Fig.19A



PROGRAM TABLE

Fig.19B



DATA TABLE